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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/761,054	01/15/2001	Thomas J. Dudley	CORE-62	4993
34845	7590	09/03/2004	EXAMINER	
STEUBING AND MCGUINNESS & MANARAS LLP			KIM, DAVID S	
125 NAGOG PARK			ART UNIT	
ACTON, MA 01720			PAPER NUMBER	
			2633	

DATE MAILED: 09/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/761,054

Applicant(s)

DUDLEY, THOMAS J.

Examiner

David S. Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. Applicant's compliance with the objections to the drawings in the previous Office Action (Paper No. 4, mailed 16 January 2004) is noted and appreciated. New drawings were received on 17 June 2004 (Paper No. 7). These drawings are approved. Thus, the previous objections are withdrawn. Formal correction of the noted defect is now requested since the examiner has considered the proposed drawing correction.

2. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action.

Specification

3. Applicant's compliance with the objections to the specification in the previous Office Action (Paper No. 4, mailed 16 January 2004) is noted and appreciated. Thus, the previous objections are withdrawn.

Claim Objections

4. Applicant's compliance with the objections to the claims in the previous Office Action (Paper No. 4, mailed 16 January 2004) is noted and appreciated. Thus, the previous objections are withdrawn.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 1-2 and 5** are rejected under 35 U.S.C. 103(a) as being unpatentable over Albanese et al. (U.S. Patent No. 4,712,859) in view of Wright et al. (U.S. Patent No. 6,411,410 B1).

Regarding claim 5, Albanese et al. discloses:

A fiberoptic system comprising:

a central office (central office 301 in Fig. 3); and

at least one downstream station (user stations 303-n in Fig. 3) connected to said central office by a bi-directional fiber (fibers 305-1 through 305-N in Figs. 3-4);

said central office comprising means for transmitting a light signal on the bi-directional fiber (laser 323 and modulator 321 in Fig. 3), means for receiving a light signal on the bi-directional fiber (receivers 317-n in Fig. 3) and a CW laser (laser 309 in Fig. 3, col. 5, lines 43-44); and

each said downstream station comprising means for receiving a light signal (photodetector 349 in Fig. 4) and a filter (objects 340 and 347 in Fig. 4), said filter being placed between the downstream station's RX unit and said central office, the filter for

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selectively reflecting a signal received from the central office (λ_1 in Figs. 3-4) on the bi-directional fiber back to the central office on the bi-directional fiber.

Albanese et al. does not expressly disclose:

said filter being tunable.

However, tunable filters are extremely well known and common in the art.

Wright et al. discloses downstream stations that incorporate tunable filters (Wright et al., tunable filter 42 in Fig. 7). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the downstream stations of Albanese et al. to incorporate tunable filters. One of ordinary skill in the art would have been motivated to do this to enable the downstream stations of Albanese et al. to handle different wavelengths, enabling the benefits of wavelength-division multiplexing (Wright et al., col. 1, lines 60-67), such as increased capacity and increased bandwidth efficiency.

Regarding claim 1, claim 1 is a system claim that corresponds to system claim 5. Therefore, the recited means in system claim 5 read on the corresponding means in system claim 1.

Regarding claim 2, Albanese et al. in view of Wright et al. discloses:

A fiberoptic system according to claim 1 wherein said tunable filter is configured so that during downstream transmission, said tunable filter is tuned (Wright et al., col. 8, lines 6-9) to the wavelength of the central office's TX unit so that the signal transmitted by the central office will pass through (col. 7, lines 34-37) said tunable filter and be received by the station's RX unit.

7. **Claims 3 and 6** are rejected under 35 U.S.C. 103(a) as being unpatentable over Albanese et al. in view of Wright et al. as applied to claims 1 and 5 above, and further in view of de Corlieu et al. (U.S. Patent No. 4,134,008).

Albanese et al. in view of Wright et al. does not expressly disclose:

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A fiberoptic system according to claim 1 wherein said tunable filter is configured so that during upstream transmission, the station's tunable filter is selectively tuned to a wavelength different than the wavelength of the central office's CW laser, so that the station's tunable filter (Wright et al., tunable filter 42 in Fig. 7) will selectively reflect light from the CW laser back to the central office, with said tunable filter being selectively tuned so as to modulate the light being reflected back to the central office, whereby to effectively create an upstream transmission from the downstream station to the central office.

De Corlieu et al. teaches a tunable filter used in upstream transmission wherein this filter will selectively reflect light back to the light source, with said filter being selectively tuned so as to modulate the light being reflected back to the light source, whereby to effectively create an upstream transmission from a downstream location to the location of the light source (de Corlieu, Fig. 5, col. 4, lines 20-42). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the filter teachings of de Corlieu et al. in the system of Albanese et al. in view of Wright et al. One of ordinary skill in the art would have been motivated to do this in order to integrate together the modulation teaching of Albanese et al. and the tunable filter teaching of Wright et al. into a simple device. Also, de Corlieu et al. teaches the implementation of the tunable filter as a "Perot-Fabry type" (de Corlieu et al., col. 4, lines 23-24), or Fabry-Perot type. As Fabry-Perot type tunable filters are extremely well known in the art, they comprise a highly mature technology.

Albanese et al. in view of Wright et al., further in view of de Corlieu et al., still does not expressly disclose:

the station's tunable filter is selectively tuned to a wavelength different than the wavelength of the central office's CW laser.

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However, de Corlieu implicitly teaches this limitation since a Fabry-Perot type filter is used (de Corlieu, et al., col. 4, lines 23-24). A change in the length of the Fabry-Perot cavity (de Corlieu et al., "thickness of the plate 12," col. 4, lines 25-26) or the index of refraction (de Corlieu et al., "refractive index," col. 4, lines 33) tunes the filter to a different wavelength. Thus, one tunes a Fabry-Perot type filter by selectively tuning to a wavelength different than the wavelength of the incident light, or central office's CW laser in this case.

Regarding claim 6, claim 6 is a method claim that corresponds to a coherent combination of the limitations in system claims 1-3. Since all these claims are rejected under Albanese et al. in view of Wright et al., further in view of de Corlieu et al., all the limitations of method claim 6 are found in Albanese et al. in view of Wright et al., further in view of de Corlieu et al. Additionally, Albanese et al. in view of Wright et al., further in view of de Corlieu et al., coherently teaches the limitations in claims 1-3. That is, the limitations in claim 6 are not divergently taught under Albanese et al. in view of Wright et al., further in view of de Corlieu et al. Therefore, the recited means in the coherent combination of the limitations in claims 1-3 read on the corresponding steps in method claim 6.

8. **Claim 4** is rejected under 35 U.S.C. 103(a) as being unpatentable over Albanese et al. in view of Wright et al. as applied to claim 1 above, and further in view of Ramaswami et al. (*Optical Networks: A Practical Perspective*).

Regarding claim 4, Albanese et al. in view of Wright et al. does not expressly disclose:

A fiberoptic system according to claim 1 wherein said CW laser is a tunable laser, and each said downstream station is assigned a different wavelength within the tuning range of said laser.

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Ramaswami et al. discloses such a system that utilizes a tunable laser and downstream stations (Ramaswami et al., p. 492, 1st full paragraph, Fig. 12.7). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate these system teachings of Ramaswami et al. One of ordinary skill in the art would have been motivated to do this since “this approach allows each [downstream station] to have electronics running only at the rate it receives data, and not at the aggregate bit rate” (Ramaswami et al., p. 492, 1st full paragraph) as is necessary in other comparable systems (Ramaswami et al., p. 491, 1st full paragraph – p. 492, 1st paragraph, Fig. 12.6).

Response to Arguments

9. Applicant's arguments filed on 17 June 2004 (Paper No. 7) have been fully considered but they are not persuasive. Applicant presents two arguments.

Regarding the first argument, Applicant argues that there is no motivation for modifying the references as suggested by the Examiner. This first argument is based on technical assertions about Albanese et al. and Wright et al.

Regarding Albanese et al., Applicant states,

“Applicants note that Albanese makes specific and frequent reference to the use of single mode fiber in their invention, which is known in the art as being capable of only forwarding a single light wave at a time” (Paper No. 7, p. 7, middle paragraph).

Regarding Wright et al., Applicant states,

“It is noted that by definition Wright must use multimode fiber, which is capable of simultaneously carrying multiple light waves on the fiber” (Paper No. 7, p. 8, middle paragraph).

Applicant then proceeds to argue,

“Accordingly, Applicants disagree that a motivation exists to modify Albanese as suggested by the Examiner to support WDM technology. It is well known that ‘If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie*

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obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).’ Applicants submit that the proposed modification of Albanese from a single mode to a multimode system is not supported by the teachings of the art. Accordingly for at least the reason that there is no modification for modifying the references as suggested by the Examiner, the rejection is improper and should be withdrawn.

Examiner respectfully notes that neither Albanese et al. nor Wright et al. supports Applicant’s technical argument. Regarding Albanese et al., Albanese et al. does teach single mode fiber, which is *also* capable of forwarding more than a single wavelength of light at a time (Albanese et al., note λ_1 and λ_2 on fiber 305-1 through 305-N in Figs. 3-4, col. 7, l. 8-25). Thus, the single mode fibers of Albanese et al. are capable of supporting the simultaneous transport of multiple wavelengths of light.

Regarding Wright et al., Examiner respectfully disagrees with Applicant’s statement that “by definition Wright must use multimode fiber.” Wright et al. does not specifically teach the use of multimode fiber or the correlation of WDM technology solely to multimode fiber. Rather, Albanese et al. already teaches that single mode fibers are capable of supporting the simultaneous transport of multiple wavelengths of light. Thus, the proposed modification or combination of Albanese et al. and Wright et al. would not change the principle of operation of Albanese et al.

It appears that Applicant’s first argument relies on a correlation of single mode fiber exclusively to the transmission of a single wavelength of light and a correlation of multimode fiber exclusively to the simultaneous transmission of multiple wavelengths of light (a WDM signal). Albanese et al. teaches against such correlations. Wright et al. is silent about such correlations. In view of the teachings of this prior art of record, Examiner finds it difficult to consider Applicant’s first argument to be persuasive.

Regarding the second argument, Applicant argues that the combination neither describes nor suggests the claimed invention. This second argument is based on limitations that are newly introduced to the claims by amendment. Applicant states,

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“Applicants note that the elements of the claims, as amended, are neither shown nor suggested in the art proffered by the Examiner. For example, claim 1 recites ‘...A fiber optic system comprising...a central office; and at least one downstream station connected to said central office by a fiber...said central office comprising a TX unity and RX unit and a CW laser; and each said downstream station comprising an RX unit and tunable filter, said tunable filter being placed between the downstream station’s RX unit and said central office *to selectively reflect a signal received from the CW laser on the bi-directional fiber back to the central office on the bi-directional fiber...*’

Applicants note that Albanese describes a system wherein separate fibers are used for communicating upstream with the central station. In addition, no such structure is shown in Wright. Accordingly, for at least the reason that the combination of references fails to teach or describe the limitations of the claimed invention, the rejection is overcome and should be withdrawn” (Paper No. 7, p. 10, 1st two paragraphs, emphasis Applicant’s).

Examiner respectfully notes that Albanese et al. also discloses a system wherein *bi-directional fibers* are used for communicating upstream with the central station (Albanese et al., Fig. 3). In view of this system of Albanese et al., Examiner finds it difficult to consider Applicant’s second argument to be persuasive.

Summarily, Applicant’s arguments are not persuasive. Accordingly, Examiner respectfully maintains the standing rejections.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Kim whose telephone number is 571-272-3033. The examiner can normally be reached on Mon.-Fri. 9 AM to 5 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571-272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DSK


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